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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,764	01/16/2004	Akira Yamaguchi	09792909-5771	6420

26263 7590 11/21/2008

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EXAMINER	
RUTHKOSKY, MARK	

ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
11/21/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/758,764	YAMAGUCHI ET AL.	
	Examiner	Art Unit	
	Mark Ruthkosky	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/12/2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) *8-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-7 and 16-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

The objection to claims 1-7 has been overcome by applicant's amendment to the claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 and 16-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "high molecular material" in claim 1 is a relative term which renders the claim indefinite. The term is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 7 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsufumi et al. (JP 09-035,718) in view of Takeuchi et al. (US 5,807,645) OR over Takeuchi et al. (US 5,807,645) in view of Mitsufumi et al. (JP 09-035,718)

Mitsufumi et al. (JP 09-035,718) teaches a non-aqueous electrolyte battery comprising an anode having an anode mixture containing an anode active material, and a cathode having a cathode mixture containing a cathode active material, said anode and the cathode being layered together via a separator (see paragraphs 2-33, figure 1 and the corresponding text); a solid electrolyte including a polymer material and an electrolyte salt contained therein (p. 28-29 and 35); and a film-shaped exterior material housing therein said battery device and the solid electrolyte (see figure 1 and p. 30 and 40); wherein a gas adsorbing carbon material formed of a carbonaceous material having a specific surface not less than 30 m^2/g, said gas adsorbing carbon material being added to said anode mixture and/or said cathode mixture for adsorbing a gas evolved within the battery (abstract, p. 23-26.) Carbon black is activated carbon as it absorbs gasses and is noted in an amount of 0.1-4% in the anode (p. 23-26.) Ketchien black and furnace black are taught in paragraph 25. Ketchien black and Ketjen black are the same material as noted above. The carbon material is taught to have a specific surface area of not less than 700 m^2/g.

Mitsufumi et al. (JP 09-035,718) does not teach the battery having a lithium anode, a high surface area carbon added to the cathode mixture in an amount of 0.2-8 wt. %, or a gel electrolyte comprising a non-aqueous electrolyte solvent.

Takeuchi et al. (US 5,807,645) teaches a battery comprising a lithium alloy anode, a positive electrode comprising acetylene black or carbon black having a surface area of not less

than 30 m^2/s (claim 20) in a range of 1-10 and 2-8 wt. % (see example 1, claims 7-8 and 22-23.) Ketchien black and other carbon black materials are taught in cols. 7-9. Further, the battery includes a solid electrolyte comprising a lithium salt in a non-aqueous electrolyte solvent that is added to a polymeric separator (col. 5, line 7 to col. 6, line 15.) The polymer material holding the electrolyte includes non-woven fabrics of polyolefinic fibers including polyvinylidene fluoride, polytetrafluoroethylene and others (col. 5, lines 7-30.) Laminated and superposed fabrics including these materials are noted. Electrolyte salts of lithium hexafluorophosphate and borofluoride are taught in col. 6, lines 5-15. The electrolyte salt is mixed with a solvent, such as a carbonate and added to the polymer membrane (paragraph bridging cols. 5-6.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a high surface area carbon material in the cathode of Mitsufumi et al. (JP 09-035,718) OR to include a high surface area carbon in the anode of Takeuchi et al. (US 5,807,645), as both references teach that adding high surface area carbon diminishes cell swelling, suppresses an increase in internal pressure, and improves the charge transfer capability of the batteries (as taught in the references.) Further, lithium anodes are taught in alkali batteries to generate electrons and power the battery. One skilled in the art would use the anode materials taught in the prior art as the anode in an alkali batteries of record. Based on the teachings of the references, one skilled in the art would be motivated to use more than one type of active carbon because each carbon material noted is taught to absorb gasses and conduct electrons in the electrode mixture. The high surface area carbon materials are taught to absorb gasses within the volume of the structure. In addition, using an electrolyte having a non-aqueous solvent would have been obvious to one of ordinary skill in the art at the time of the invention based on the

electrolyte materials used in the battery (see Takeuchi, paragraphs bridging cols. 5-6.) One of ordinary skill would recognize that aqueous solvents would be used in alkaline hydroxide cells and the non-aqueous solvent electrolytes will be used in lithium ion batteries. One skilled in the art would be motivated to use a non-aqueous solvent with electrodes that destructively react with water, such as lithium based anodes. The artesian would have found the claimed invention to be obvious in light of the teachings of the references.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsufumi et al. (JP 09-035,718) in view of Takeuchi et al. (US 5,807,645) OR over Takeuchi et al. (US 5,807,645) in view of Mitsufumi et al. (JP 09-035,718) as applied above, in view of Bannai (US 6,503,656 and EP 1,063,713.)

Mitsufumi et al. (JP 09-035,718) and Takeuchi et al. (US 5,807,645) teach non-aqueous electrolyte batteries, as noted. The battery may be housed in a cylindrical or square shaped housing. The references do not teach the battery to have a laminate film of a metal layer and a resin layer as an exterior casing material. Bannai et al. (EP 1,063,713) teaches a battery to have a laminate film of a metal layer and a resin layer as an exterior casing material (see the claims, p. 21-22.) It would have been obvious to one of ordinary skill in the art at the time the invention was made to house the batteries of Mitsufumi and Takeuchi in a casing of a laminate film having a metal layer and a resin layer in order to provide a durable, light-weight casing that has low permeability due to the metal layer and high sealability due to the resin layer (see '713, p. 2-4.) The artesian would have found the claimed invention to be obvious in light of the teachings of the references.

Response to Arguments

Applicant's arguments filed 8/12/2008 with regard to the amended claims have been fully considered but are moot in view of the new rejections based on the amended claims. Further, the arguments based on the art applied are not persuasive.

Applicant argues that Mistufumi et al. and Takeuchi et al. do not teach or even fairly suggest the use of a solid electrolyte that includes a fluorine-based high molecular material. This argument is not persuasive. Takeuchi et al. (US 5,807,645) teaches a battery comprising a lithium alloy anode, a positive electrode comprising acetylene black or carbon black having a surface area of not less than 30 m^2/s (claim 20) in a range of 1-10 and 2-8 wt. % (see example 1, claims 7-8 and 22-23.) Ketchien black and other carbon black materials are taught in cols. 7-9. Further, the battery includes a solid electrolyte comprising a lithium salt in a non-aqueous electrolyte solvent that is added to a polymeric separator (col. 5, line 7 to col. 6, line 15.) The polymer material holding the electrolyte includes non-woven fabrics of polyolefinic fibers including polyvinylidene fluoride, polytetrafluoroethylene and others (col. 5, lines 7-30.) Laminated and superposed fabrics including these materials are noted. Electrolyte salts of lithium hexafluorophosphate and borofluoride are taught in col. 6, lines 5-15. The electrolyte salt is mixed with a solvent, such as a carbonate and added to the polymer membrane (paragraph bridging cols. 5-6.)

Applicant further argues that Bannai et al. does not teach or even fairly suggest an anode mixture that includes at least one of either lithium or lithium alloys as an active material and a carbonaceous material that absorbs gas as discussed above in the claimed invention. In response

to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Bannai et al. (EP 1,063,713) is cited to show that the prior art teaches a lithium battery having a lithium active material and a case with a laminate film of a metal layer and a resin layer as an exterior casing material. The rejection is based on Mitsufumi et al. (JP 09-035,718) in view of Takeuchi et al. (US 5,807,645) OR over Takeuchi et al. (US 5,807,645) in view of Mitsufumi et al. (JP 09-035,718) as applied above, in view of Bannai (US 6,503,656 and EP 1,063,713.) The references cited teach an anode mixture that includes at least one of either lithium or lithium alloys as an active material and a carbonaceous material that absorbs gas as discussed above in the claimed invention.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

/Mark Ruthkosky/

Primary Examiner, Art Unit 1795